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THE STATISTICAL BACKGROUND OF CLOTHES RATIONING 1941-44 (*cont.*)

II. COUPON EXPENDITURE BY SOCIAL GROUPS

This section will deal with the coupon expenditure upon clothing of the different social groups as defined in the previous article. Family budget investigations have shown that money expenditure upon clothing before the war rose almost proportionately¹ with total money outlay; perhaps partly because of a greater number of purchases but also because of the higher prices paid. There are also considerable differences in stocks, but we shall deal with the money outlay and clothing stocks of the different groups in subsequent sections. For the moment we shall consider only the relation between clothing purchases (as shown by the coupon expenditure) and the standard of living. The percentage distribution of average coupon outlay analysed by social groups is given in Table VI below. It will be seen that the selection of garments is not comprehensive; the choice was determined by the fact that from the original data price-averages had been compiled for the Board of Trade for these items and not for certain others which might have been of interest, e.g. nightwear. The list includes most of the essential articles of clothing and investigation of the material shows that there are other reasons for regarding these as the 'basic' clothing items² in the budget of both sexes.

¹ The proportions given in 4 income groups are 9.1%, 8.8%, 9.0% and 8.3% respectively in rising order of outlay (Massey, J.R.S.S., 1942).

² This is not to say that all the items excluded are 'luxury' goods. The addition or substitution of other items such as nightwear would not, however, much affect the conclusions.

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TABLE VI. *Percentage Distribution of Coupons spent on Selected Garments by Social Groups*

Social Group : Actual No. of coupons spent on	MEN									
	A-B		C		D		E			
	1941/2	1942/3	1943/4	1941/2	1942/3	1943/44	1941/2	1942/3	1943/4	1943/4
a. Selected articles	37.3	31.1	23.5	46.2	34.7	29.8	55.9	40.1	31.5	36.1
b. All others (not listed)	16.0	11.1	9.9	14.5	11.7	9.8	14.3	10.6	8.5	6.7
c. Total (a & b)	53.3	42.2	33.4	60.7	46.4	39.6	70.2	50.7	40.0	42.8
% of Total on :										
Boots and Shoes	10.8	9.5	12.9	14.3	12.1	15.7	15.0	15.2	18.2	22.6
Socks	10.3	12.0	7.1	12.6	12.9	8.6	14.9	16.0	10.8	13.3
Overcoats	3.9	2.6	3.4	3.4	2.9	2.1	3.4	2.8	2.8	2.3
Raincoats and Macs	3.0	4.5	5.1	3.9	3.7	3.5	3.2	2.7	2.8	2.0
Suits	14.8	14.6	13.0	12.6	11.4	15.1	12.7	9.1	12.6	14.7
Shirts	13.3	15.4	13.6	14.1	15.9	13.8	14.5	16.5	15.3	14.5
Trousers	4.6	5.3	4.1	5.0	4.5	4.9	5.6	5.6	4.8	4.7
Vests	4.5	5.7	6.3	4.9	5.3	5.4	5.1	5.1	5.2	4.9
Pants	4.7	6.0	4.8	5.3	6.1	6.2	5.1	5.9	6.0	5.2
Group as % of total outlay	69.9	73.6	70.4	76.1	74.8	75.3	79.6	79.1	78.6	84.4
WOMEN										
	A-B		C		D		E			
	1941/2	1942/3	1943/4	1941/2	1942/3	1943/4	1941/2	1942/3	1943/4	1943/4
a. Selected Articles	40.4	33.9	28.8	46.3	36.6	32.8	49.9	40.5	32.4	33.6
b. All others (not listed)	23.4	17.4	16.1	21.5	17.6	13.9	21.7	15.4	12.2	10.8
c. Total (a & b)	63.8	51.3	44.9	67.8	54.2	46.7	71.6	55.9	44.6	44.4
% of Total on :										
Shoes and booties	11.6	9.5	11.5	11.9	9.8	13.6	9.6	11.8	15.9	19.6
Stockings	15.9	18.3	15.6	17.1	17.4	16.9	14.9	18.0	15.9	14.9
Overcoats	8.1	8.9	7.4	9.9	10.7	10.5	7.6	12.3	11.1	9.3
Raincoats and Macs	1.6	2.0	1.4	1.7	1.7	1.8	1.3	1.2	1.2	0.9
Costumes	3.2	5.2	7.7	2.2	4.3	4.5	1.4	3.3	4.0	3.5
Dresses	8.0	7.7	7.6	8.7	9.1	8.7	6.5	9.0	8.1	9.1
Blouses, jumpers & cardigans	4.3	4.6	4.8	3.6	3.7	3.9	2.9	3.2	3.8	3.6
Petticoats & slips	1.6	1.2	1.5	2.2	1.8	1.6	2.2	2.6	2.0	2.5
Odd skirts	1.7	1.1	0.9	1.4	1.3	1.1	1.1	1.0	1.0	1.2
Vests	3.0	3.4	2.6	4.8	3.4	3.4	3.9	4.3	4.3	4.1
Knickers	4.4	4.0	3.1	5.0	4.2	4.3	4.8	5.7	5.2	5.5
Group as % of total outlay	63.4	68.2	66.7	68.2	69.7	72.9	56.2	74.7	74.6	76.3

*In comparing the distribution of coupon expenditure with that given in Section I it must be remembered that not all the garment groups are identical. The Footwear group in Section I includes other varieties such as slippers, rubber footwear and clogs. Again suits includes jackets and trousers (or skirts) sold separately in the previous case, whereas here it refers only to 3-piece suits for men and costumes for women. Overcoats in the previous section included raincoats here given separately.

We see that in the first three periods under review the total coupon expenditure of *men* rises as we pass from Group AB to E, but that in each successive year the difference between the extremes decreases. It will be remembered that AB is the highest and E the lowest income group. This means that in general the distribution of coupons and money change in opposite directions as we pass from one group to the next, which makes the analysis even more complicated. Of the total number of coupons spent in each case the proportion devoted to these 'basic' items selected also rises from group to group in the same order. Thus a man in Group E spent 83 to 84½ per cent of his total outlay in the three periods upon the nine articles of clothing listed, while for a man in Group AB the corresponding proportion was between 69 and 74 per cent. It should be remembered that Group E has spent on the average¹ more coupons than AB each year (21 more in 1941/42 though only 11 more in 1943/44). Yet, although the total coupon outlay of the Group AB man is lower, he spends both a larger proportion and a greater absolute number of coupons upon 'other items' (not listed in the tables) in each of the three periods considered here.

The same general tendencies can be seen to characterise the distribution of *women's* coupon expenditure, the chief exception being that in the third year Groups D and E spent fewer coupons in total than Groups AB and C. Although the women's list includes eleven items and the men's nine, the proportion of total coupon outlay devoted to these is less than that for men, ranging from 66.5% in Group AB for 1941/2 to 76.3% in Group E in 1943/4.

It is noticeable that for both sexes the proportion of total coupon outlay devoted to the items listed decreases as money income increases, i.e. from Group E to AB. Since coupon outlay can be regarded as an index of real consumption this constitutes support for regarding these as the more essential items in the clothing budget. This difference between the social groups is probably related to the difference in their stocks of clothing. For, as we should expect, consumers' stocks of all clothing increase with their standard of living (see Section IV) and the possession of large stocks decreases the urgency of clothing purchases. It is paradoxical that in terms of coupons alone these items appear to be 'luxuries' in the sense that the proportion spent upon them increases with coupon outlay. This is due to the opposite distribution of coupon and money incomes.

Taking the same social group in each of the three years, we find that although their coupon outlay has fallen, the proportion devoted to these items does not show any regular variation. The very stability of this proportion within each group is the most striking feature. An examination of the proportions devoted to each garment in the list shows that it has been secured in each group of consumers by compensating shifts between the different items.

The tables suggest a number of interesting questions, only a few of which can be raised here. There are obvious and considerable shifts in

¹ This is only true of the average of coupon distribution, for the occupational groups do not coincide with the social groups. Within Group E, for example, the presence of 'pensioners and others living at the subsistence level' who get no supplementary coupons must lower the average coupon outlay (compare with Group III, Table V).

the expenditure pattern of *men* of groups C, D and E in 1943/44. As between the first two periods under review, Group C, D and E men show almost unit coupon-outlay elasticity¹ for a number of items, e.g., socks and raincoats in group C, boots and shoes, trousers and vests in group D, and raincoats, suits, trousers and pants in Group E. The stability of the pattern of men's coupon outlay in the first two years has already been noted (p. 214 above). It is rather surprising, since the fall in total coupon outlay was bigger between the two first than between the second two periods under review. This feature is noticeably absent in the pattern of group AB. Only one garment suits shows a coupon outlay elasticity of 1 in that group. For *women* the proportional distribution of coupon expenditure appears to be more stable after the first year of rationing in the groups C, D and E. As between 1942/43 and 1943/44 much the same proportion is devoted to the last five items in the table by the Groups C, D and E. Once again the AB group pattern of coupon outlay shows more changes as a whole than those of the other three groups.

The changes in the pattern of coupon expenditure² have been plotted as before, analysed by social groups, though they have not been included here. For neither sex do the diagrams show the same regular variation of pattern which was characteristic of the occupational groups. The chief feature is the similarity between C, D and E groups for men and the D and E groups for women. In both sexes the AB group pattern is different from the others. It is not possible to explain these differences in expenditure in detail. For example, the diagrams show a marked rise in coupon outlay upon men's suits in groups C, D and E between the second and third periods; whereas in group AB there is, if anything, a corresponding fall. The interpretation of these differences between the groups is complicated in this instance by two factors: the coupon scarcity of the two quarters from March to September 1943; and the removal of the Austerity regulations for men's suits after February, 1944.

One broad conclusion can, however, be drawn: that one of the chief effects of differences in money incomes upon the coupon distribution of clothing purchases is to separate men as consumers into broad classes, AB group on the one hand, and C, D and E together on the other. The women fall into three groups. AB, C, and lastly D and E. The separation is most clear in the case of men. But even this conclusion is not valid for every type of garment. For some items the four groups seem homogeneous. If we plot coupon expenditure upon each item against total coupon outlay taking all the four social groups together, we find that a linear relationship is obtained in the case of certain items, despite the fact that the points relate to different dates. For example, in the case of men's coupon expenditure upon overcoats all the twelve points available from the data (three for each social group) lie upon a straight line. In the case of men's footwear the separation into the two broad social categories is, on the other hand, clearly shown; while for socks, the scatter of the points seems more random. One possible explanation is that the purchases of some garments, e.g. overcoats, are determined by coupon considerations chiefly, and are not much affected by the other factors at

¹ When the proportion of expenditure devoted to an item remains constant through changes in total outlay, that item is said to have unit outlay elasticity.

² Relating to absolute, not proportional, outlay.

work. Other garments are purchased upon considerations determined partly by coupons and partly by money. In the case of yet other items, coupon considerations appear to have still less importance. It is of interest to see whether these conclusions are supported by the analysis of expenditure in money terms, though the evidence here is less complete.

III. MONEY EXPENDITURE BY SOCIAL GROUPS

The members of the Panel have recorded the money prices paid for the garments purchased continuously throughout, but average prices¹ from these records, analysed by social groups, have only been compiled for the year 1941/42. Since June 1942 the information requested from the British Market Research Bureau by the Consumers Needs Branch of the Board of Trade has been only the median and quartile values of prices paid for the Panel as a whole. However, the original material for the later years was very generously made available for use in this study and a further, but limited number of averages were calculated for 1943/44.

Since the average number of each garment purchased, analysed by all the different classifications of the sample is on record the Tables below of average money expenditure in 1941/42 were arrived at by multiplying the average purchases of each social group by the average price paid. The average number purchased during the year per head is also given in the Table for each garment.

TABLE VII. *Average Money Expenditure (in Shillings & Pence) upon 'Basic' Garments, 1941-42, and average number of each garment bought by Social Groups.*

		MEN				WOMEN			
Garment Group		AB	C	D	E	AB	C	D	E
Boots and Shoes	Exp.	24/6	31/4	35/3	40/2	43/6	43/11	37/9	34/5
	No.	0.84	1.25	1.61	1.84	1.51	1.70	1.79	1.91
Socks (Stockings)	Exp.	6/9	8/5	10/10	13/5	23/1	25/1	25/-	23/3
	No.	1.89	2.72	3.74	4.89	5.13	5.89	6.82	6.97
3-P Suits (Costumes)	Exp.	60/5	36/3	36/2	33/3	15/-	12/6	6/10	5/7
	No.	0.31	0.30	0.34	0.37	0.12	0.10	0.08	0.07
Shirts (Dresses)	Exp.	15/6	17/8	19/1	20/8	38/2	26/8	26/-	20/-
	No.	1.37	1.62	1.96	2.10	0.62	0.72	0.77	0.76
Overcoats	Exp.	14/2	12/1	12/8	12/11	44/-	47/-	35/11	33/11
	No.	0.13	0.13	0.16	0.19	0.31	0.40	0.40	0.42
Raincoats and Macs	Exp.	6/4	9/11	8/7	5/6	3/6	6/4	4/3	4/4
	No.	0.12	0.18	0.16	0.13	0.09	0.13	0.11	0.12
Trousers (Skirts)	Exp.	12/1	11/-	11/4	12/-	7/1	4/2	2/9	3/-
	No.	0.33	0.42	0.53	0.58	0.19	0.17	0.14	0.15
Vests ...	Exp.	6/2	5/9	5/5	5/11	4/4	3/9	4/8	4/10
	No.	0.78	0.79	0.95	1.11	0.66	0.83	1.11	1.23
Pants (Knickers)	Exp.	6/4	7/1	5/11	5/5	5/3	5/10	5/6	6/-
	No.	0.70	0.90	0.96	0.91	0.96	1.25	1.38	1.46
Blouses, etc.	Exp.					10/10	7/7	6/8	5.6
	No.					0.55	0.49	0.52	0.54
Petticoats	Exp.					4/-	4/1	5/8	4.9
	No.					0.40	0.60	0.80	0.82
Total upon these items		154/4	139/6	145/4	149/3	198/9	187/-	160/11	145/-
Total Coupon Outlay on these items		37.3	46.2	55.9	62.2	40.4	46.3	49.9	51.8

¹ The sample for price averages depends upon the number of purchases and this is sometimes small, e.g. in the case of group AB purchases of suits and overcoats.

From this Table we can see that the average number of each garment purchased increases for men from group AB to E as does coupon outlay.¹ In the case of women there are certain exceptions in which the number bought decreases in the same order, e.g. costumes, or in which the change is not regular e.g. skirts, and blouses and jumpers. The differences between groups in the quantity purchased is not always regular; for example it is often much smaller between D and E than between AB and C. This lack of uniformity coupled with the variation in prices paid must be remembered when considering the variation in the pattern of money expenditure between the different groups.

From Table VII we see that the difference between the extremes of total outlay is greater in the case of women than that of men; although the average money outlay upon these items is much the same for both sexes in Group E the differences are larger in the other groups. Again in the case of women total money outlay falls off uniformly as we pass from group AB to E whereas the men's money expenditure first falls and then rises in the same order. This may be partly due to the greater degree of understatement said to characterise the men's expenditure returns; but the argument of the previous section (p. 228) suggests another explanation. If, as it was suggested there, the sample under consideration falls into two and not four distinct social groups in the case of the men and three in that of women we should expect this to be reflected in the prices paid.

A convenient index of the prices paid by the different social groups is provided by the money outlay per coupon and we shall consider the group differences thus revealed (see Table VIII) before returning to the questions raised by Table VII. The details of Table VIII were obtained by dividing the items in Table VII by those in Table VI.

TABLE VIII

Money Expenditure (in Shillings and Pence) per Coupon 1941/42, by Social Groups

Group	MEN				WOMEN			
	AB	C	D	E	AB	C	D	E
Boots and Shoes	4/3	3/7	3/4	3/2	5/11	5/5	4/5	3/8
Socks (Stockings)	1/3	1/1	1/1	1/-	2/3	2/2	1/10	1/8
3-piece Suits (Costumes)	7/8	4/9	4/1	3/7	7/4	8/3	5/3	3/10
Shirts (Dresses)	2/2	2/1	1/11	1/10	7/5	4/8	4/8	3/5
Overcoats	6/10	5/10	5/4	4/4	8/7	7/-	5/3	5/-
Raincoats and Macs	4/-	4/3	3/9	2/10	3/6	5/7	3/8	3/11
Trousers (Skirts)	4/11	3/7	2/10	2/10	6/7	4/4	3/1	3/2
Vests	2/7	1/11	1/6	1/5	2/3	1/2	1/4	1/4
Pants (Knickers)	2/6	2/2	1/8	1/7	1/11	1/9	1/4	1/4
Blouses, etc.					4/-	3/1	2/8	2/1
Petticoats					3/10	2/9	3/1	2/4
Average for Basic Garments	4/1	3/-	2/7	2/5	4/4	4/1	3/3	2/10

We see that average money expenditure per coupon rises more uniformly in the case of women than of men (see Table VIII) but that for both sexes there is a sharp rise between group C and group AB.

¹ The figures of actual purchases are, however, not always strictly proportional to the coupons spent because of small coupon price differences for different qualities of the same garment, e.g., woollen and non-woollen shirts.

The money expenditure of women per unit of clothing purchased is more indicative of a difference in the standard of living than in the case of men. It is of interest to see in which garments buying habits are most responsive to this difference.

For certain garments the differences between the four groups is not great; for example men's socks and shirts, where the range is twopence and fourpence per coupon respectively (25% and 18% of the lowest outlay respectively). The smallest range in the case of women is in their purchases of stockings. The similarities between groups D and E are striking in both sexes for all garments with the chief exception of suits, overcoats and boots and shoes. It is in these three items that the upward trend of prices is most uniform and also most marked, the highest values per coupon being reached by all groups but specially by AB consumers in these cases.

The price pattern of raincoats is interesting. In both sex groups, C group consumers spend more shillings per coupon in the purchase of these garments and if we look back at Table VII we see that they also buy a greater number of these garments. This appears to be a special class characteristic and is an example of the anomalous variation to which the pattern of expenditure is liable.

We are now in a position to understand the details of Table VII. For example, average money outlay upon men's shoes, socks and shirts rises from AB to E because the actual number bought increases so sharply as to compensate for the fall in prices paid. In the case of men's suits and overcoats, the almost constant level of money expenditure of groups C, D, and E reflects an inverse proportionality between the number bought and the price paid. The high level of money expenditure upon men's suits in group AB therefore is out of all proportion to the number bought, by the standards of groups C, D and E.

In the case of women average money outlay tends either to fall throughout or to remain more or less constant. This is because the higher groups not only pay a higher average price but buy nearly as many of each item as do the lower. In some cases, e.g. suits, they buy a greater average number and here the money outlay falls off most sharply between AB and E. Only in the case of the underwear listed (vests, knickers and petticoats) does the trend of expenditure between the groups resemble that of men.

From the index of prices paid (Table VIII) and from the distribution of money expenditure two broad conclusions emerge. Firstly, that, if the sample is truly representative of the population, the clothing purchases of men under rationing are less indicative of differences in the family standard of living than those of women.

Secondly, that this conclusion is more applicable in the case of certain garments than of others. Even men's purchases of outer garments such as shoes, suits, trousers and overcoats show an almost continuous gradation with the difference in their social circumstances.

P. ADY.

WAGES DURING THE WAR

Since July 1941, the Ministry of Labour has conducted regular enquiries, at six monthly intervals, into the earnings of workpeople employed in all the important manufacturing industries, as well as building and certain other minor industries. Similar enquiries had been made in October 1938 and July 1940 and it has thus been possible to compare wages in different industries, to ascertain the changes which have occurred during the course of the war, and to analyse the principal factors responsible for the increase in the average level of earnings, among all these industries combined. In addition, full details have recently been made available¹ about average and total annual earnings in coal mining, for each year since 1938, while data on wages in the railway service have been collected for March of each year since 1942, as well as for March 1939. It is to be hoped that these enquiries, which have been valuable for the study of war-time developments, will continue to be conducted at regular intervals after the war, and their scope even extended, if possible, to include those industries, such as agriculture, the distributive trades and domestic service, for which, at present, no similar information is available.

The latest enquiry of which the results have been published by the Ministry of Labour² was held in January 1944. Since there have only been minor changes in wages and hours since the previous enquiry, in July 1943, and the procedure has remained unchanged, it is unnecessary to repeat the full description, or to discuss the results in such detail as before.³

The Table below, showing index numbers of average earnings of men, boys (under 21), women and girls (under 18), since October 1938, brings the previous estimates up to date. The index of wage rates, which is also shown, for comparison, covers the group of industries which are included in the earnings enquiries. If other industries (agriculture, coal mining, railways and merchant shipping) were included, it is stated that the index of wage rates for January 1944 would be raised to about 140.

Average earnings in January, particularly in the building and contracting industries, are affected by the fact that working hours in winter are shorter than in summer. To make the figures more closely comparable with those for other dates, the index numbers have been adjusted by assuming that average earnings of builders in January 1944 were the same as in July 1943; for the previous years, it was assumed that builders' average earnings in January were mid-way between the averages at the two July enquiries immediately preceding and following. In each case, the unadjusted and adjusted figures have both been shown.

Comparison of the two sets of index numbers shown in the Table, after eliminating the effect on the index for all workers of changes in the relative proportions of men, boys, women and girls, shows the effect on average earnings of changes in the relative numbers employed in different industries. Between October 1938 and January 1944, the

¹ *Ministry of Fuel and Power, STATISTICAL DIGEST FROM 1938*, Cmd. 6538, July 1944.

² *Ministry of Labour Gazette*, August 1944.

³ The results of the previous enquiry were discussed in *BULLETIN* Vol. 6, No. 7.

INDEX NUMBERS OF AVERAGE EARNINGS

Based on numbers employed in 1938

	Men	Boys	Women	Girls	All	Index of Wage Rates
October 1938	100	100	100	100	100	100
July 1940	126	132½	118	118	125½	110½
July 1941	140	155½	129	132½	139½	118
January 1942 (unadjusted)	140½	156½	134½	140	141	122
January 1942 (bldrs. ad.)	144	161½	-	-	145	-
July 1942	153	169	151	159	154	124
January 1943 (unadjusted)	154	165	158½	166	155½	126½
January 1943 (bldrs. ad.)	156	168	160	-	158	-
July 1943	164	173	167	176	165½	130
January 1944 (unadjusted)	165	172	170½	178½	166½	132
January 1944 (bldrs. ad.)	166½	174½	171	-	168½	-

Based on numbers currently employed

	Men	Boys	Women	Girls	All
October 1938	100	100	100	100	100
July 1940	129.0	134.5	119.7	120.7	129.9
July 1941	144.1	160.7	135.1	135.1	142.4
January 1942 (unadjusted)	147.8	162.9	146.2	145.0	146.0
January 1942 (bldrs. adj.)	151.0	167.6	-	-	150.2
July 1942	161.5	177.0	166.7	163.5	159.9
January 1943 (unadjusted)	164.9	172.8	180.0	173.4	165.1
January 1943 (bldrs. adj.)	167.0	176.0	181.8	-	167.6
July 1943	175.7	180.8	191.3	182.9	175.7
January 1944 (unadjusted)	179.2	179.6	196.2	185.1	179.5
January 1944 (bldrs. adj.)	180.5	182	196.5	-	181.5

increases in average earnings resulting from changes in the relative numbers in different industries (but not including the effects of changes between different occupations within a given industry) are estimated as follows :

Men	Boys	Women	Girls	All
8½%	4½%	15%	3½%	9%

Comparison of these estimates with those previously obtained shows that the relative numbers of men employed in the more highly paid industries have increased since July 1943, while the corresponding proportions of boys, women and girls have remained practically unchanged.

The fact that, in general, the proportion of women has risen, while the proportions of men, boys and girls have declined, has caused a reduction in the average earnings of all workers employed in these industries, which may be estimated at 1½%, for the period from October 1938 to January 1944.

Average weekly hours of work in the same group of industries, in October 1938 and January 1944, and the percentage changes between these two dates, are shown below. Here again there is a seasonal factor, which has been eliminated, so far as possible, by recalculating the percentages on the assumption that average hours in building and contracting had remained unchanged since July 1943. Part-time women workers are included, here and in the previous estimates, on the basis of two part-time women workers representing one full-time worker.

The averages, shown here, were obtained by weighting the different industries, and in the case of all workers the four sex and age groups,¹ according to the relative numbers employed at the respective dates.

¹The latter is not explicitly stated, but may be inferred.

Average Weekly Hours of Work in the Principal Industries

	<i>Men</i>	<i>Boys</i>	<i>Women</i>	<i>Girls</i>	<i>All</i>
October 1938	47.7	46.2	43.5	44.6	46.5
January 1944	52.0	47.1	45.2	44.6	49.2
Percentage Increase (unadj.)	9.0	1.9	3.9	0	5.8
Percentage Increase (adj. for builders)	10.3	2.8	5.1	0	7.1

If different industries and sex and age groups were weighted according to the relative numbers employed in 1938, it is stated that the average hours of all workers in January 1944 would be about 48½; that is, about 4.8% higher than in October 1938, or 6.1% higher if adjusted for builders.

It follows that the increase in average hours of work resulting from changes in the relative numbers employed in different industries amounted to about 1%. Thus the effect on the average earnings of all workers of the changed proportions in different industries, estimated above as 9%, consists of 1% due to differences in hours, and 8% due to differences in hourly earnings, between the various industries.

The factors responsible for the increase of 81½% in the average earnings of all workers (based on current weights and adjusted for the seasonal factor in building), between October 1938 and January 1944, may be summarised as follows. Wage rates, between these dates, increased by 32%; hours by 6%; changes in the relative numbers employed in different industries caused an increase of 9%; changes in the proportions in the four sex and age groups a reduction of 1¼%; all remaining factors, such as extra payments for overtime and night work, and changes between different occupations within a given industry, caused the average level of earnings to be raised by some 20½% (estimated as a residual). Thus:

$$132 \times 1.06 \times 1.09 \times 0.9875 \times 1.205 = 181\frac{1}{2}$$

Data on average earnings, including allowances in kind, of wage earners employed in coal mining, for each year from 1938 to 1943, have been published in the *Statistical Digest from 1938* (Cmd. 6538); the figures of average earnings per week and per man-shift are reproduced in the following table. The information relates to undertakings in Great Britain which produced about 97% of total output and are based on data for the whole of each year, not on sample weeks, as in the Ministry of Labour enquiries.

In the same publication, figures are given of the average number of weekly shifts worked, per wage-earner, and these are also shown below. The product of average earnings per man-shift and average number of weekly shifts should, of course, agree with the figures of average weekly earnings, but in 1943 there is a discrepancy of about 2½% in the figures as published.

In the first quarter of 1944, average earnings per man-shift, excluding the value of allowances in kind, were approximately 20s. 3½d. or about 81% higher than the corresponding average (11s. 2.83d.) in 1938. Average weekly cash earnings in the first quarter of 1944 were approximately 105s. 9d., or about 90% higher than the corresponding average (55s. 9d.) in 1938. This was, of course, before the agreement governing wages in coal mining for the next four years, which was signed in April 1944.

Average Wages in Coal Mining in Great Britain

	Av. no. of weekly shifts per wage-earner	Av. Earn- ings per Man-shift* s. d.	Index of av. earnings per man-shift*	Average weekly earnings* s. d.	Index of av- erage weekly earnings*
1938	4.96	11 8.02	100	57 11	100
1939	5.15	11 11.99	102.8	61 9	106.6
1940	5.27	13 6.05	115.7	71 2	122.9
1941	5.37	15 5.11	132.2	82 9	142.8
1942	5.34	18 0.18	154.4	96 2	166.0
1943†	5.12	19 8.54	168.9	103 3	178.3

* Including the value of allowances in kind.

† Figures for this year slightly inconsistent (see text).

J. L. NICHOLSON.

WARTIME CHANGES IN THE DISTRIBUTION OF THE POPULATION OF GREAT BRITAIN

It is well known that population movements on a considerable scale have taken place during the war within the country, but little information is available to show the direction and extent of these movements and none at all to distinguish the more temporary movements from lasting migration. Recently figures have been given which show the distribution of the population by regions on three dates : (1) a pre-war distribution for mid-1938, (2) the distribution just after the outbreak of war in the first evacuation period at the end of September 1939, and (3) a distribution after $2\frac{1}{2}$ years of the war, in April 1942. The three counts are not strictly comparable. The first is the Registrar General's estimate of the population in mid-1938 based on the 1931 Census and on current estimates of the balance of deaths and births and of migration. These estimates aim at eliminating temporary movements such as those due to industrial and other holidays, and endeavour to conform to a standard based upon 'usual residence.' The second count is based on the National Registration of 29th September 1939¹ recording the actual local populations on the day of the count, however abnormal and temporary they might be. The National Register¹ of 1939 differs from the Registrar General's Estimate¹ in that it gives the actual local, not the resident, population, that it excludes 'persons serving in and not on leave from the forces and also persons on ships in port or in tidal waters.'² The third distribution is derived from estimates made by the Ministry

¹ The Registrar General's Estimate may be found in the Statistical Review for 1938. It is reproduced together with the results of the National Registration of September 1939 in a recent publication entitled 'National Register of the United Kingdom and the Isle of Man. Reports and Tables,' H.M.S.O., 1944. This publication will be quoted in this article as 'N.R.'

After this article was completed the population figures for mid-1939 were published in the Statistical Review for 1939. A provisional test showed that the regional distribution of mid-1939 did not differ materially from the 1938 distribution.

² For an estimate of the excluded sections of the population see N.R., page ix. Estimates for the 1939 population of Northern Ireland for which National Register figures are not available are given on page xiii.

TABLE I

Changes in the Regional Distribution of Population within Great Britain 1938—1942

Civil Defence Regions :				Registrar General's Estimate Mid-1938		National Register Population Sept. 29, 1939		Number of persons registered for sugar April 3, 1942	
				000	%	000	%	000	%
<i>London:</i>									
L.C.C., Middlesex	...			6,121	13.3	4,911	10.8	4,467	10.3
<i>Eastern:</i>									
Norfolk, Suffolk, Essex, Cambridge, Ely, Herts, Beds, Hunts	...			3,858	8.4	3,397	8.6	3,545	8.1
<i>South Eastern:</i>									
Kent, Surrey, Sussex	...			3,670	7.9	3,904	8.6	3,311	7.6
<i>Southern:</i>									
Dorset, Bucks, Hants, Isle of Wight, Oxon, Berks	...	...	...	2,286	4.9	2,432	5.3	2,327	5.3
<i>South Western:</i>									
Glos, Somerset, Wilts, Cornwall, Devon	...			2,646	5.7	2,889	6.3	2,902	6.7
<i>Midlands:</i>									
Warwick, Staffs, Salop, Worcs, Herefordshire	...			3,935	8.5	4,005	8.8	3,982	9.1
<i>North Midlands:</i>									
Northants, Lincs, Rut- land, Derby, Leicester, Notts, Peterborough	...			3,050	6.6	3,131	6.9	3,158	7.2
<i>North Western:</i>									
Lancs, Cheshire, Cum- berland, Westmorland	...			6,541	14.2	6,440	14.1	6,262	14.4
<i>North Eastern:</i>									
W. Riding, E. Riding	...			3,964	8.6	3,879	8.5	3,662	8.4
<i>Northern:</i>									
Northumberland, Dur- ham, N. Riding	...			2,677	5.8	2,596	5.7	2,589	5.9
<i>Wales:</i>	...	...	...	2,466	5.3	2,567	5.6	2,553	5.9
<i>Scotland:</i>	...	...	...	4,993	10.8	4,908	10.8	4,839	11.1
Total G.B.	...	...	...	46,208	100.0	45,559	100.0	43,597	100.0

TABLE II

Changes in the Regional Distribution of Population within Great Britain 1938—1942

Civil Defence Regions :				Percentage Change		
				1938=100	1939=100	1942=100
				1939	1942	1942
London	...	...	...	—19.8	—27.0	—9.0
Eastern	...	...	...	+ 1.0	— 8.1	— 9.0
South Eastern	...	...	...	+ 6.4	— 9.8	—15.2
Southern	...	...	...	+ 6.4	+ 1.8	— 4.3
South Western	...	...	...	+ 9.2	+ 9.7	+ 0.4
Midlands	...	...	...	+ 1.8	+ 1.2	— 0.6
North Midlands	...	...	...	+ 2.7	+ 3.5	+ 3.5
North Western	...	...	...	— 1.5	— 4.3	— 4.3
North Eastern	...	...	...	— 2.1	— 7.6	— 5.6
Northern	...	...	...	— 3.0	— 3.3	— 0.3
Wales	...	...	...	+ 4.1	+ 3.5	— 0.5
Scotland	...	...	...	— 1.7	— 3.1	— 1.4
Total Great Britain	...	...	...	— 1.4	— 5.7	— 4.3

of Food (published in the Board of Trade Journal, 3rd June 1944) and based on the number of persons registered for sugar, including the number of services personnel billeted privately for more than 4 weeks at a time, plus an estimate of the number of persons resident in establishments and institutions who do not register with retailers. The sugar registration differs from the National Register in that it apparently excludes forces on leave but includes some billeted personnel of the Services. The number of personnel on leave of the small army of September 1939 is likely to be much smaller than the personnel billeted for more than four weeks in 1942. The National Registration overestimates, therefore, the true civilian population only slightly, the Sugar Registration to a greater extent. But the latter omits presumably that section of the population having emergency ration cards and therefore not subject to registration. No quantitative estimates of these factors are available. Moreover the local distribution may be distorted by the tendency of people in rural and small urban areas to shop in the towns. This may be of some importance when we consider the distribution of populations between towns and the remainder of the country, but it is not likely to be significant when we compare shifts between major regions.

Sugar registrations for 1942 were classified by Defence Regions; the 1938 Estimates and the National Register which were recorded for the usual administrative areas and geographical regions, had therefore to be adapted to conform to the Civil Defence Regions as shown in Table I.

It may be observed that the total recorded population for the United Kingdom fell by 1.4 per cent between mid-1938 and September 1939. This decrease is estimated by the Registrar General¹ to be the result of a 0.8 per cent real increase, representing the natural forces of birth and death and the balance of external migration, abated by the exclusion of 2.2 per cent of persons in the forces and 'on ships.' If we can assume that the differences in estimation between the 1938 Estimate and the Sugar Registration do not affect the true totals appreciably, the decrease of 1942 as against 1938, amounting to 5.5 per cent, may be similarly analysed into a real increase of slightly more than 2 per cent counter-balanced by a decrease of slightly less than $7\frac{1}{2}$ per cent through the exclusion of the non-billeted members of the forces and of the 'shipping population.'

For the various regions of the country this procedure cannot be applied with the same confidence, as the incidence of enlistments and still more of the shipping population is likely to vary considerably, and since natural increases may also be unevenly spread over the country. The inclusion of billeted personnel in the forces in the sugar registration may also affect various parts of the country differently. As the necessary material for the assessment of the regional incidence of these factors is not available we must take the figures as they stand and keep in mind the inherent sources of error.

Let us first compare the share of the various regions in the respective total populations of 1938, 1939 and 1942. The percentage columns of Table I show how the proportion of the London Civil Defence Region in the total declined sharply immediately after the outbreak of war and continued

¹ See note ² on page 235.

TABLE III

Excess of Regional Change over National

(a) percentages. (b) absolute numbers in 1,000's.

Change 1938—1942				Change 1938—1942			
Civil Defence Regions		Losses	1938—42	Civil Defence Regions		Gains	1938—42
		(a)	(b)			(a)	(b)
London ...	...	-21.3	1,308	South Western ...	...	+15.4	406
South Eastern ...	...	-4.1	153	North Midlands ...	...	+9.2	280
Eastern ...	...	-2.4	95	Wales ...	...	+9.2	226
North Eastern ...	...	-1.9	77	Southern ...	...	+7.5	170
				Midlands ...	...	+6.9	269
				Scotland ...	...	+2.6	128
				Northern ...	...	+2.4	63
				North Western ...	...	+1.2	91
-1,653				+1,633			

Change September 1939—April 1942

Change September 1939—April 1942				Change September 1939—April 1942			
Civil Defence Regions		Losses	1939—42	Civil Defence Regions		Gains	1939—42
		(a)	(b)			(a)	(b)
South Eastern ...	...	-10.9	425	North Midlands ...	...	+5.2	162
London ...	...	-4.7	232	South Western ...	...	+4.7	137
Eastern ...	...	-4.7	184	Northern ...	...	+4.0	105
North Eastern ...	...	-1.3	50	Wales ...	...	+3.8	97
Southern ...	...	0	0	Midlands ...	...	+3.7	149
				Scotland ...	...	+2.9	142
				North Western ...	...	+1.5	99
-891				+891			

TABLE IV

Population of Large Towns above 100,000

Civil Defence Area		in Thousands			Percentage of Population of Large Towns in Total Regional Population		
		1938	1939	1942	1938	1939	1942
London*	...	5,208	3,859	3,401	85.1	78.6	76.1
Eastern ...	...	1,167	984	604	30.2	25.3	17.0
			(885)†			(22.7)	
South Eastern ...	...	390	370	341	10.6	9.5	10.3
Southern ...	...	605	717	686	26.5	29.5	29.5
			(619)‡			(25.4)	
South Western ...	...	636	627	540	24.0	21.7	18.6
Midlands ...	...	1,779	1,732	1,712	45.2	43.2	43.0
North Midlands ...	...	681	764	814	25.3	24.4	25.8
North Western ...	...	2,794	2,551	2,907	42.7	39.6	46.4
North Eastern ...	...	1,848	1,713	1,738	46.6	46.7	47.5
			(1,616)			(41.7)	
Northern ...	...	799	646	790	29.8	27.9	30.5
Wales ...	...	507	606 (509)§	586	20.6	23.6 (19.7)	23.0
Scotland ...	...	1,953	1,752	1,860	39.1	35.7	38.4
G.B. ...	...	18,361	16,321	15,979	39.7	35.6	35.6
			(15,930)			(35.0)	

* London area includes all the L.C.C. and all towns above 100,000 in Middlesex.

† Figure in brackets exclude Ipswich with 99,634.

‡ " " " Oxford " 98,221.

|| " " " York " 97,673.

§ " " " Newport " 96,699.

to fall from 1939 to 1942. The Eastern and South-Eastern Civil Defence Regions attracted some of London's population during the first month of the war, but after the fall of the Low Countries and France their share in the total falls considerably below the 1938 figure. All the other regions either retain their proportionate share or increase it. The Southern and South-Western Regions, the Midlands and Wales gained fairly steadily, the North-Eastern area lost relatively, while the remaining regions including Scotland held their own fairly well.

The regional movements of population between 1938 and 1939 have been carefully analysed in the National Register Report quoted above.¹ Table II gives the percentage change of population for each Civil Defence Region from 1938 to 1942 respectively. These percentage changes are the net result of private and official evacuation, of labour transfers and other movements, of external migration, of enlisting in the forces, and the natural increase. At the end of the first month of the war London's civil population had declined by about one-fifth; all the northern regions (N.W., N.E., N. and Scotland) showed losses too, but on a minor scale, while all other regions, particularly the Southern and Western ones, showed gains. Two and a half years later the picture was changed; the London area had further losses, but initial gains of the Eastern and South-Eastern regions were turned into considerable losses. The North-Eastern and Northern regions had also further losses, while most other areas, above all the Midlands, gained relatively in 1939.

The same pattern emerges even more clearly if the regional percentages are corrected for the national decline in civilian population (by deducting the national percentage change from the regional figures) and if losing and gaining regions are separated, as has been done in Table III.

As the regions are of unequal size the percentage changes do not tell the full story. Columns (b) of Table III therefore give the corresponding absolute figures. It is obvious that these inter-regional population shifts do not reveal the full extent of the war-time migration since very considerable movements have taken place within the regions. It is very likely, for instance, that the Channel fringe of the Southern area with Southampton and Portsmouth had considerable losses which were more than compensated between 1938 and 1942 by the gains of the northern part of the region. But no evidence is available to show the effect of movements within regions between 1939 and 1942.

The sugar registration published by the Board of Trade gives, however, the population by large towns, defined as towns with over 100,000 inhabitants, for each Civil Defence Region. From the National Register we can obtain the corresponding population of large towns in 1938 and 1939. Always bearing in mind the different bases of the three estimates, this classification may serve to shed some light on the question whether and how far the war led to a redistribution of population away from large towns to smaller towns and rural districts. Table IV gives the result of the comparison.

Here again too much attention should not be paid to small differences in absolute figures. Quite apart from the general tendency of sugar registrations to over-estimate the true civilian population, the particular

¹ See N.R., page xvi.

tendency of the buying population to do their shopping in big towns biases the figures. Further, as long as the number of large towns or their names are not given for the sugar registration it is possible for towns to slip in or out of the category 'large towns' and thus to impair the comparison. Some such borderline cases of towns just under 100,000 inhabitants are mentioned in the footnote to the Table, and it will be seen that their inclusion or exclusion affects the absolute figures appreciably.

These difficulties of comparison cannot be overcome entirely even if we take the proportion of the 'large town population' in the respective total populations of the various regions at different dates. These proportions are shown in the last three columns of Table IV. The share of large towns in the total population of G.B. fell slightly from 1938 to 1939 but does not seem to have changed significantly since. There has been no de-urbanisation or dispersion in this sense. In the various Defence Regions the development has, however, been far from uniform. If we neglect the London area, which for this discussion must probably be taken as one big town, it will be noted that in the Eastern and also in the South-Western (Plymouth and Bristol) regions the degree of urban concentration fell, while in the North-Western and Northern regions,¹ and in Scotland the concentration percentage rose. In other areas, particularly in the Midlands, the war does not seem to have affected appreciably the distribution of population between large towns and the remainder.

To sum up: the belt of land along the Channel coast to the Thames Estuary including London, and northward to Tyneside, was relatively depopulated, as one would expect, while the centre and western areas increased their relative share in the population. In many but by no means all cases the influx swelled the percentage of the town population and the efflux tended to reduce it. But until we obtain more detailed and more comparable data for the war period such general conclusions can only be stated with the greatest reserve. Where changes have been large, it may be assumed that the figures show the direction though not necessarily the true extent of the movements. Their social and economic significance can only be assessed when the Ministry of Labour reveals the regional distribution of the working population and the Ministry of Food gives the sugar registrations according to sex and age groups.

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¹ The increase in the percentage share of the population of large towns in these regions is relatively large and would seem to be partly due to the definition of 'regions' and 'of large towns.'